KENTUCKY EDUCATION NETWORK
KENTUCKY EDUCATION CABINET

KEN Applications Subcommittee
Work Group on Interoperability
September 17, 2007

Charge:

The Interoperability Work Group will evaluate the interoperability requirements to ensure seamless communications between diverse systems operating on the KEN network. The goal is to identify the possible standards for practice and procedure, such that systems will work with other systems without special effort on the part of operators or users. Data systems should be constructed to maximize the opportunity for exchange and reuse, and cataloging of this data is also a consideration. Data structure specification is beyond the scope of this workgroup charge.

Scope:

Standards such as SIF (School Interoperability Framework), PESC (Postsecondary Electronic Standards Council), SCORM (Sharable Content Object Reference Model), information search & retrieval protocols – Z39.50, SRU, SRW, Web Services, uPortal (Open Portal), Shibboleth (Authentication and Authorization)

Timeline:

July 18, 2007 – Mid-project progress report to the KEN Applications Subcommittee
September 1, 2007 - Recommendations due to the Subcommittee

Work Group Members:

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CPE – Miko Pattie*, Stuart Johnston, Enid Wohlstein, Charles McGrew
Education Cabinet – Laura Wagner
EPSB – Scott Smith
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Where We Are in the Use of This Application:

1. There is a Kentucky Enterprise Data Structure Group (http://technology.ky.gov/policies/keda/default.htm) lead by COT. Its strategic vision was released April 1, 2007. (http://gotsource.ky.gov/dsweb/Get/Document-125430/Kentucky+Enterprise+Data+Architecture+Strategy+(4-07).doc)

The vision of the Kentucky Enterprise Data Architecture (KEDA) project is to create an

environment that allows data integration, eliminates data duplication, improves data operation costs, and establishes a framework to support strategic business initiatives.

Benefits of the KEDA initiative include the following:

- Improve Data Interoperability: Facilitate the elimination of point-to-point architecture and the increased proliferation of enterprise-based systems.
- Improve Data Reliability: Facilitate agency level comprehension of standardized data elements and the ability to communicate within and between agencies about data with a clear understanding of its meaning.
- Decrease Redundancy: Facilitate the elimination of redundant data, decreasing Commonwealth hardware, software and support resource costs.
- Promote Reusability: Facilitate reduction in logical and physical database design time by utilization of established standards. Standardized interfaces will also decrease time-to-production for system development.

2. Each KEN partner has its own interoperability issues. Some postsecondary institutions have single sign-on for intra-campus applications.

3. There are common statewide systems in place:

- KYVL has a common library management system, Voyager, for 18 entities, all public and some private institutions, KDLA, and others.
- KYVL has a common set of electronic databases that serve statewide audience.
- The K-12 community has implemented KY Student Information System (KSIS) – migrating from STI to Infinite Campus.
- The K-12 community has implemented MUNIS for finance and human resources.
- We have a statewide Blackboard license for the P-20 community.
- We have the GoHigherKY (http://gohigherky.org) portal for planning and transitioning to postsecondary education

4. There is no statewide systems inventory for the P-20 community available for the work group to review.

Where We Want to Go in the Use of This Application:

We want to minimize barriers for teachers and learners in their use of current or future systems in teaching and learning. The following interoperability issues are considered to be critical for the P-20 community:

1. Single Sign-on among systems that are used frequently by teachers and learners. This need was identified by the public in the February 2007 survey as the top priority.
2. Admissions
3. Assessment & Placement
4. Remediation
5. Content Quality
6. Financial Aid
7. Tracking & Advising

8. One-stop Shop for Online Student Support Services

How Are We Going to Get There:

1. Single Sign-On:

- We recommend that the standard Web single sign-on and federating middleware software, Shibboleth (http://shibboleth.internet2.edu/), be used as the technical platform for SSO. Shibboleth is an initiative by Internet2 member universities to develop and deploy new middleware technologies that can facilitate inter-institutional collaboration and access to digital content.
  It provides two types of value:
  - Relief from multiple passwords and logons along with the resulting improvement in security
  - Protection against unnecessary disclosure of personal attributes, resulting in preservation of privacy

  Applications that currently support Shibboleth include Blackboard, Microsoft Sharepoint, numerous library systems and digital services, and all the major ERP systems.

- We recommend that a pilot project be selected to design, test, and implement a common federation allowing P-20 institutions to share Shibboleth-enabled applications and services.

- We recommend the following funding for this pilot project:
  - 2008-09 $100,000
    - Consulting services to educate and train statewide technical staff on Shibboleth
    - Consulting services to analyze P-20 systems and select an appropriate pilot project
  - 2009-10 $100,000
    - Professional services to work with the pilot project staff to design, test and implement Shibboleth
  - Total funding request for 2008-10 = $200,000

- Once this pilot is proven to be successful in the use of Shibboleth, we recommend that we have a phased approach using established criteria to implement federation of other systems

2. The Work Group recommends the following to address #2 - #8 issues:

- Identify systems that are associated with the issues based on the Systems Overview Matrix and the Needs Overview Matrix using cost benefit model
- Identify the standards that enable seamlessness among these systems
- Estimate costs associated with implementing standards to enable seamlessness
- Make recommendations with budget request to the KEN Applications Subcommittee
- Make recommendations to insert language on standards into RFPs for new systems.

3. The Work Group recommends this group be a standing group to:

- continue its work
- monitor the progress being made on seamlessness

- keep abreast with new standards that enable seamlessness
- participate in standards training delivered by KEN partmners
- Be an advocate for standards

Impact on Teaching and Learning:

According to the Schools Interoperability Framework Association (SIFA, http://www.sifinfo.org/), quality education relies, in large part, on professional educators and parents having access to the information, resources, and tools to serve learners of all ages. Seamless integration of a broad spectrum of instructional, administrative and communications tools is essential to effectively address the needs of all learners.

Interoperability is especially important for assessment. Assessment supplies the driving force behind instruction. Teachers constantly revise instruction and planning based upon assessments. These assessments may take the form of summative, formative, benchmarking or diagnostic assessments. Many applications exist to enable these assessments in the classroom, including online assessment systems, handheld devices or learning management systems. There is a need to enable all of the various applications and assessments to seamlessly transfer this information to planning applications and assign content and/or instruction to students based upon their current knowledge of the learning and performance standards. Interoperability makes this happen.

The Advanced Distributed Learning (ADL) and the SIFA announced on September 14, 2007 on establishing formal relationship to develop and implement a new version of the widely-implemented SCORM (Sharable Content Object Reference Model) reference model into school software applications. This Core SCORM will leverage the SIFA community to enable interoperability to improve teaching and learning for schools across the globe. This signifies a significant beginning for seamlessness in the K-12 community. This work group will keep abreast of this new development.

This work group will establish measurements for each of the issues in order to know how the implementation of these interoperable systems affects teaching and learning.